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**Piepenbrink et al.**

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(54) **INTEGRATED SERVICE IDENTITY FOR  
DIFFERENT TYPES OF INFORMATION  
EXCHANGE SERVICES**

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See application file for complete search history.

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(57)

**ABSTRACT**

A service provisioning method includes providing a differentiated set of information exchange services to a user. In some embodiments, differentiation between or among the provided services may include differentiated access networks, differentiated physical network layers, and/or differentiated service providers. An integrated service identity may be generated and/or maintained by the service provider (s) or by a third party. The integrated services identity may enable the user to define preference settings applicable to the information exchange services, to process billable events and activity and to issue integrated statements encompassing all of the information exchange services provided to the user, and enabling the user to access customer support services for any of the information exchange services and further enabling the logging of all customer support activities to the integrated service identity.

**Related U.S. Application Data**

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(51) **Int. Cl.**

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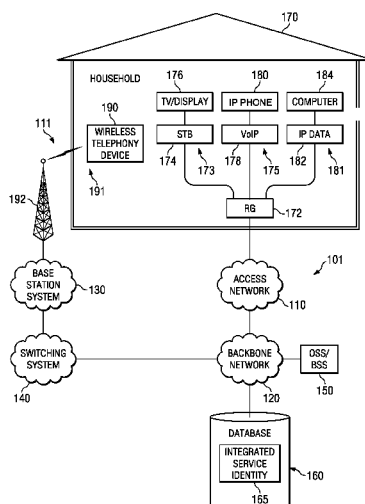
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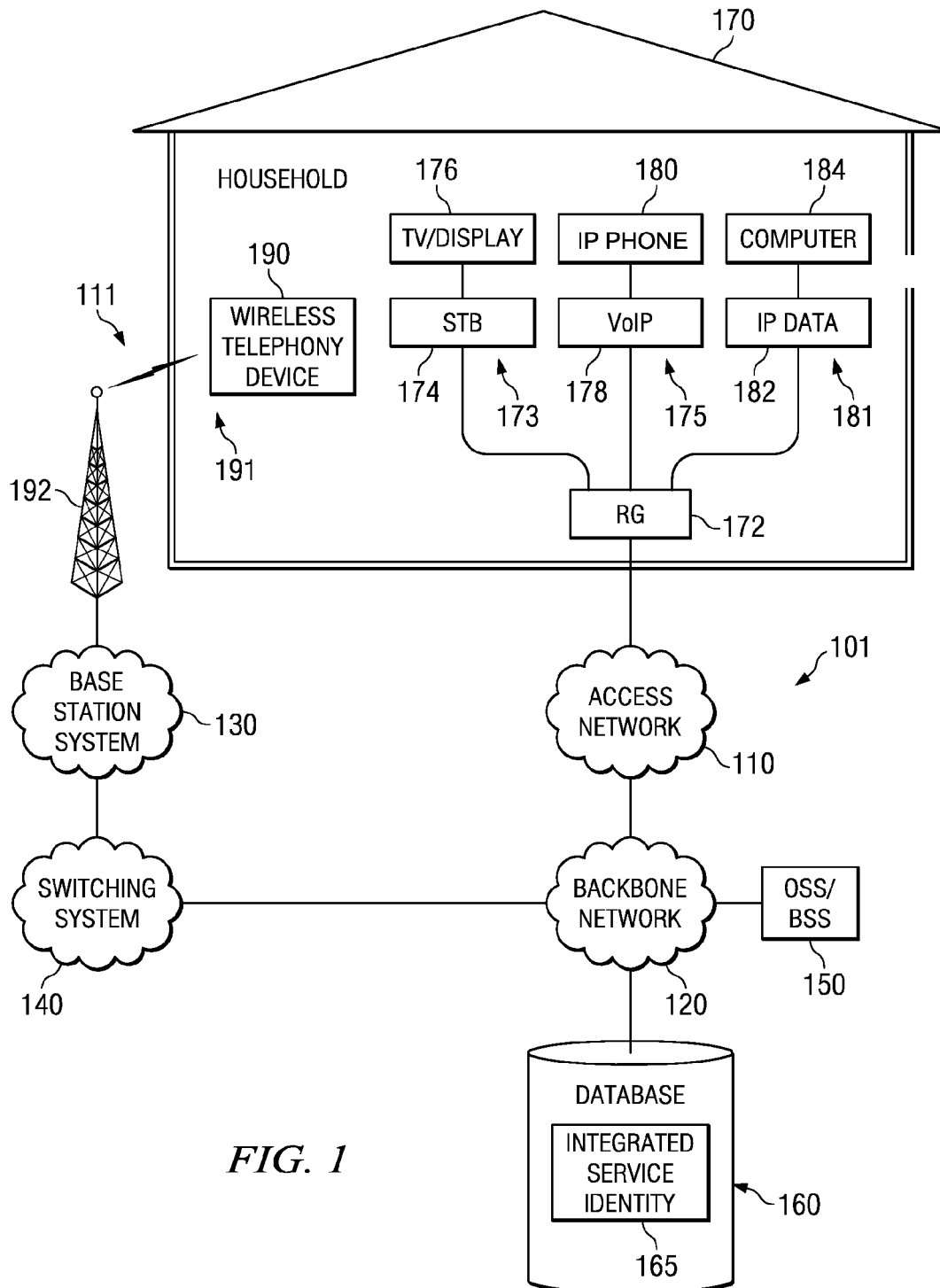
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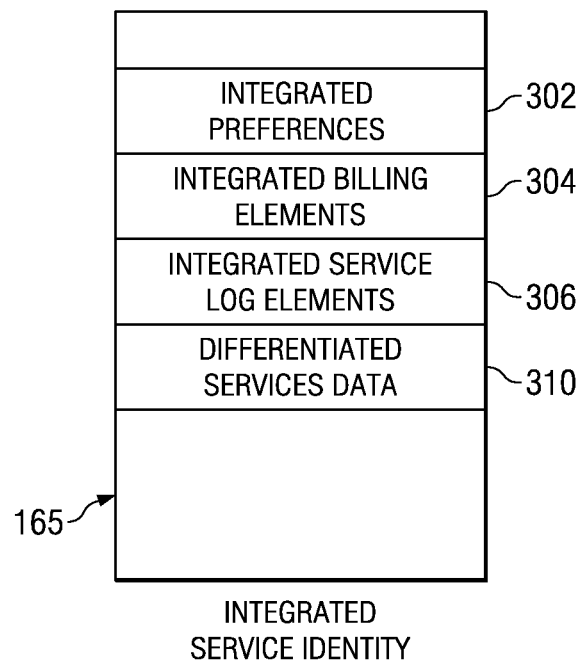
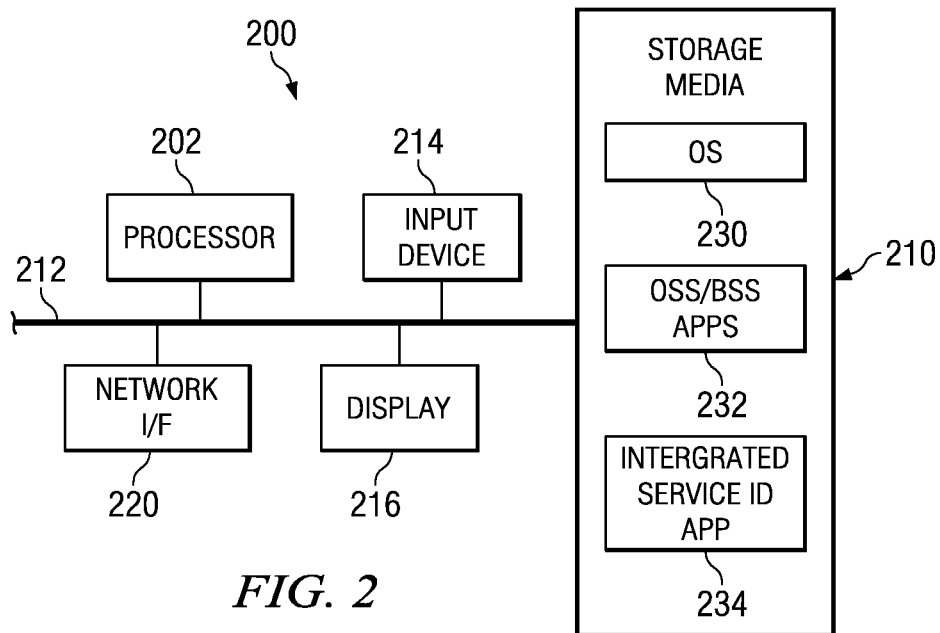
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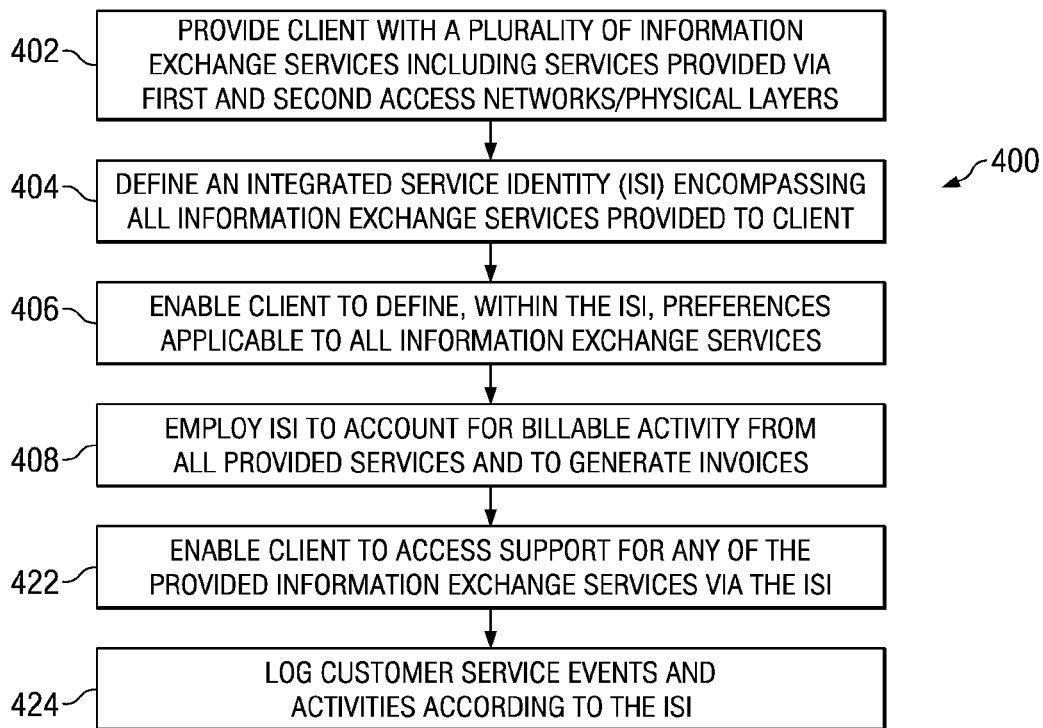


FIG. 4

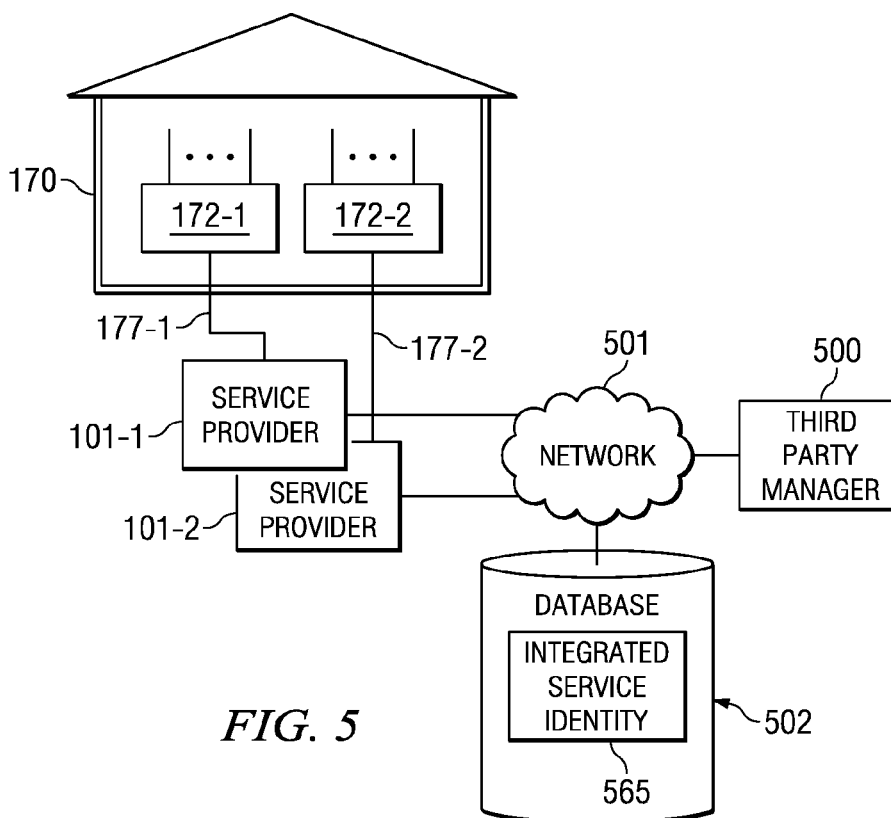


FIG. 5

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## INTEGRATED SERVICE IDENTITY FOR DIFFERENT TYPES OF INFORMATION EXCHANGE SERVICES

The present patent application is a continuation of a previously filed patent application, U.S. patent application Ser. No. 12/341,425, filed Dec. 22, 2008, issuing as U.S. Pat. No. 8,776,185 on Jul. 8, 2014, the entirety of which is hereby incorporated by reference. An application data sheet containing a reference and priority claim to the previously filed application, unless submitted previously, is submitted contemporaneously herewith.

### BACKGROUND

#### 1. Field of the Disclosure

The present disclosure relates to information exchange services and, more particularly, managing a plurality of different types of information exchange services.

#### 2. Description of the Related Art

Information exchanges services include wireless telephony services, multimedia content delivery services, Internet services, and fixed access voice services. Many households subscribe to two or more of these types of services. Different services may be provided by a single provider or multiple providers. Services may be provided via one or more access networks. Many households, for example, subscribe to cable television services provided via a coaxial cable-based access network and Internet and fixed access voice services via a twisted copper digital subscriber line access network.

### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of selected elements of an embodiment of a household emphasizing information exchange services provided to the household;

FIG. 2 is a block diagram of an embodiment of an integrated service identity suitable for use in a household such as the household of FIG. 1;

FIG. 3 is a block diagram of selected elements of an embodiment of a data processing system suitable for implementing aspects of an integrated service identity feature;

FIG. 4 is a flow diagram depicting selected elements of a process for providing an integrated service identity; and

FIG. 5 is a block diagram of selected elements of an alternative embodiment for providing an integrated service identity.

### DESCRIPTION OF EXEMPLARY EMBODIMENTS

In one aspect, an embodiment of a service provisioning method disclosed herein includes providing information exchange services to a user. The information exchange services provided may include services provided via a first access network having a first physical network layer and services provided via a second access network having a second physical network layer. The information exchange services may include services provided by a first service provider and services provided by a second service provider. In these embodiments, the integrated service identity may be provided and/or maintained by a third party.

Disclosed service provisioning methods may further include defining an integrated service identity encompassing all of the information exchange services and enabling the user to use the integrated service identity (ISI) to define

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preference settings applicable to the information exchange services. The integrated service identity may then be employed, e.g., to process billable events and activities and to issue integrated statements encompassing all of the information exchange services provided to the user. The user may be further enabled to use the integrated service identity to access customer support services for any of the information exchange services provided and to log customer support activities to the integrated service identity.

The information exchange services provided via the first access network may include multimedia content delivery services, fixed access voice services, and broadband Internet services. The first access network may include a physical network layer including, as examples: a digital subscriber line (DSL), an integrated services digital network (ISDN), a T-carrier, or E-carrier physical network layer, a co-axial cable based physical network layer, cellular or other type of wireless physical network layer including third generation (3G) and beyond. Information exchange services provided via the second access network may include mobile telephony services. The second access network may include a physical network layer compliant with a standard such as wideband-code division multiple access (W-CDMA), time division-CDMA (TD-CDMA), TD-synchronous CDMA (TD-SCDMA) and time division multiple access (TDMA). The first access network may include a wired access network and the second access network may include a wireless access network. In some embodiments, enabling the user to define preference settings may include, e.g., enabling the user to define a single logon for all devices associated with one or more of the information exchange services. The devices associated with the information exchange services may include, as examples, a set top box/television display for rendering the multimedia content delivery services, an Internet protocol phone for the fixed access voice services, and a desktop or laptop personal computer for broadband Internet services.

In the following description, details are set forth by way of example to facilitate discussion of the disclosed subject matter. It should be apparent to a person of ordinary skill in the field, however, that the disclosed embodiments are exemplary and not exhaustive of all possible embodiments. Throughout this disclosure, a hyphenated form of a reference numeral refers to a specific instance of an element and the un-hyphenated form of the reference numeral refers to the element generically or collectively. Thus, for example, widget 12-1 refers to an instance of a widget class, which may be referred to collectively as widgets 12 and any one of which may be referred to generically as a widget 12.

Turning to the drawings, FIG. 1 is a block diagram depicting selected elements an embodiment of a household 170 emphasizing information exchange services consumed by household 170. FIG. 1 also depicts selected elements an embodiment of a provider network 101 for providing information exchange services to household 170. Although FIG. 1 depicts a household 170 suggesting consumer oriented services, other embodiments may encompass large or small businesses, governmental or educational entities, or any other suitable type of user that might require information exchange services.

As depicted in FIG. 1, household 170 receives various information exchange services. In the depicted embodiment, for example, household 170 receives information exchange services in the form of wireless telephony services 191 via wireless telephony device(s) 190, a multimedia content delivery service 173 via a set top box 174 and a television and/or display device 176, a fixed access voice service 175

represented by voice over Internet (VoIP) icon **178** and IP phone **180**, and an Internet data service **181**, represented by IP data icon **182** and computer **184**.

Wireless telephony services **191** may include cellular communication services with or without wireless data services. Multimedia content delivery service **173** may include broadcast and non-broadcast television content, sometimes referred to as cable content, as well as video on demand and pay per view content. MCD Service **173** may, for example, represent a service for delivering IPTV to household **170**. IP data services **181** may include, as examples, email services and Web access services.

In the implementation depicted in FIG. 1, information exchange services are provided to household **170** via two different access networks. Multimedia content delivery service **173**, fixed access voice service **175**, and IP data service **181** are provided to household **170** via a wired access network **110** to which a residential gateway (RG) **172** is interfaced. The wireless telephony service **191**, in contrast, is provided to household **170** and wireless telephony device **190** via a wireless access network **111** in the form of an air interface between wireless telephony device **190** and a cellular base station (BS) **192**. In some embodiments, an integrated service identity provided as disclosed herein encompasses all of the information exchange services provided to household **170** including services provided via different access networks and/or different physical network layers or physical media. In addition, some embodiments, such as the embodiments discussed below in conjunction with FIG. 5, describe an ISI that encompasses information exchange services that are provided by two or more service providers.

As depicted in FIG. 1, all of the information exchange services are provided by a single service provider **101**. The service provider **101** includes all of the resources needed to provision and distribute the applicable information exchange services to a plurality of households such as household **170** and/or other end users. The depicted embodiment of service provider **101** includes, for example, the wired access **110**, base station system **130**, switching system **140**, and a backbone network **120**. Depending upon the implementation, access network **110** may include twisted copper cables and/or fiber or another type of broadband media connected between a network node and the household. Base station system **130** and switching system **140** may include elements of a conventional wireless network such as a Global System for Mobile communications (GSM) network and/or 3G network such as Universal Mobile Telephone System (UMTS). Backbone network **120** may represent a private, high-bandwidth network maintained by the service provider to achieve low latency and high availability in terms of providing services to a plurality of households such as household **170**.

Service provider **101** as depicted in FIG. 1 includes a set of resources collectively identified as operation support systems/business support systems (OSS/BSS) resources **150** and a database **160** including a data structure identified as integrated service identity **165**. Although DB **160** is depicted in FIG. 1 as being physically remote from OSS/BSS resources **150**, DB **160** may, in other implementations, be integrated within OSS/BSS resources **150**. OSS/BSS resources **150** include telecommunications network management resources including, as examples, resources for maintaining network inventory, provisioning services, configuring network components, and managing faults. In addition, OSS/BSS **150** encompasses business-oriented systems

including, as examples, systems for taking orders, processing bills, and collecting payments.

Referring to FIG. 2, selected elements of a data processing system **200** suitable for implementing OSS/BSS **150**, or some portion thereof, is depicted. In the depicted embodiment, data processing system **200** includes a processor **202** and storage media **210** connected to and accessible by processor **202** via a bus **212**. Data processing system **200** as depicted further includes one or more input devices such as a keyboard, pointing device or mouse, microphone, and the like represented by input device **214**. Data processing system **200** as shown also includes a display **216**, which may include a graphics adapter and a display screen connected thereto, and a network interface **220**. Network interface **220** provides connectivity between data processing system **200**, including processor **202**, and an external network such as the backbone network **120** depicted in FIG. 1.

Storage media **210** may include any of various forms of computer readable storage or memory. Storage media **210** may include volatile storage elements including a system memory comprised of dynamic or static random access memory devices as well as persistent storage media such as magnetic hard disk drive units, solid state drive units, flash memory, and other types of read only memory and electrically erasable read only memory, as well as optical media including compact discs and/or digital versatile discs.

Storage media **210** may include executable instructions, i.e., computer programs, as well as data structures. In the depicted embodiment, for example, storage media **210** includes an operating system **230**, which may be a Linux or other type of Unix-based operating system or a Windows-based operating system. In addition, the depicted embodiment of storage media **210** includes OSS/BSS applications **232** and an integrated service identity application **234**. OSS/BSS applications **232** may include applications for provisioning services, configuring network components, and managing faults. In addition, OSS/BSS applications **232** may encompass business-oriented systems including, as examples, systems for taking orders, processing bills, and collecting payments.

Referring now to FIG. 3, selected elements of an embodiment of an integrated service identity **165** are depicted. In the depicted embodiment, ISI **165** including integrated preferences elements **302**, integrated billing elements **304**, and integrated service logs elements **306**. In addition, the depicted embodiment of ISI **165** includes differentiated services data **310**. The integrated preferences, billing, and service log elements **302**, **304**, and **306** represent information that is applicable to and may be shared among all of the information exchange services provided to household **170**. Differentiated services data **310**, on the other hand, may include information that is specific to one or a limited number of the information exchange services.

Integrated preferences information **302** of ISI **165**, as its name suggests, includes preferences or "favorites" settings that are applied to all of the information exchange services provided to household **170**. Integrated preferences information **302** may include, for example, preference settings for preferred contact information, password settings, user profile information, parental control settings, calendar, scheduling, reminder settings, and so forth.

In some embodiments, integrated billing elements **304** encompasses billing information pertaining to all of the information exchange services provided to household **170**. Integrated billing elements **304** might include, as examples, billing address information, credit card and/or bank account

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information, invoice scheduling information, invoice preferences information, e.g., invoice by email, invoice by paper mail, and so forth.

Integrated customer service logs elements **306** may include information relevant to all of the household's interaction with the service provider or providers of the information exchange services received by household **170**. In some embodiments, integrated customer service logs elements **306** may include, as examples, customer services logs identifying and/or detailing customer service events pertaining to household **170** or any of the information exchange services. Integrated customer service logs elements **306** may enable service provider **101** to identify service problems, coordinate service activities, and otherwise improve service and/or reduce costs.

As depicted in FIG. 3, ISI **165** may further include an element identified as differentiated services data **310**. Differentiated services information **310** may include service-specific identity information and/or links to service-specific data. For example, wireless telephony service **191** provided to household **170** may have settings, features, and other service identity parameters that are specific to wireless telephony technology and are not readily adaptable for use with integrated service preferences, billing, and/or customer service information.

In some embodiments, aspects of integrated service identities as disclosed herein are implemented in software, i.e., implemented as a set of computer executable instructions stored in a computer readable storage medium or stored in a set of two or more computer readable storage media including, as an example, the storage media **210** of FIG. 2. In these embodiments, the computer functionality embedded in the stored instructions may be described or illustrated with reference to flow diagrams illustrating the processes or methods that may occur when the applicable instructions are executed.

Referring now to FIG. 4, a flow diagram depicts selected elements of an embodiment of a process **400** for implementing an integrated service identity is depicted. In the depicted embodiment, process **400** as shown includes providing (block **402**) a user with a plurality of information exchange services. The services provided to the user may include services provided through a first access network and/or physical network layer, e.g., a DSL layer, and other service(s) provided through a second access network and/or a second physical network layer e.g., a wireless access network such as UMTS, W-CDMA, and so forth.

An ISI is defined (block **404**) for a set of two or more of the information exchange services provided to a household. Process **400** as depicted in FIG. 4 further includes enabling (block **406**) the user to define within the ISI, preference information or settings applicable to two or more of the information exchange services. The ISI may be employed (block **408**) to account for billable activity from all information exchange services provided to user and to generate monthly or periodic invoices to the user (block **408**).

The depicted embodiment of method **400** may further include, enabling (block **422**) the user to access support for any of the information exchange services provided to the household. Moreover, the ISI may enable the provider or providers of information exchange services to monitor a household's customer service history across all of the services and/or devices provided to the household. If, for example, a household is experiencing customer service issues on all services that are provided through a common set of devices or other hardware elements, the integrated service log may enable the service provider to recognize a

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commonality between customer service requests for differentiated services. Process **400** as depicted in FIG. 4 further includes logging (block **424**) customer service event activities according to the ISI.

Referring now to FIG. 5, a block diagram depicts an alternative embodiment for implementing an ISI **165**. In the embodiment depicted in FIG. 5, household **170** receive a first set of information exchange services, represented by reference numeral **177-1**, from a first service provider **101-1**. Household **170** also receives a second set of one or more information exchange services **177-2** from a second service provider **101-2**. In the depicted embodiment, the first set of information exchange services **177-1** are provided to household **170** via residential gateway **172-1** while the second set of information exchange services **177-2** are provided to household **170** via a second residential gateway **172-2**. Although FIG. 5 depicts distinct residential gateways for the set of information exchange services provided by the different service providers, other embodiments may employ a common gateway, more than two gateways, and so forth.

As depicted in FIG. 5, a third party manager **500** is shown connected to a network **501**. Service providers **101-1** and **101-2** are also connected to network **501**. Network **501** may represent or include elements of a public network such as the Internet. In other embodiments, the network **501** may be a private network established by a virtual private network (VPN) or other form of private network operated by first service provider **101-1**, second service provider **101-2**, third party manager **500**, or another network provider (not shown).

Also depicted in FIG. 5 is a database **502** operably connected to network **501** wherein the information stored in database **502** may be accessed from network **501**. Depending upon the implementation, access to database **502** via network **501** may require password and/or additional form(s) of authentication. In the embodiment depicted in FIG. 5, database **502** includes an ISI **565** that is managed by third party manager **500**. Third party manager **500** may provide first service provider **101-1** with access to a first portion of ISI **565** and access to a second portion of ISI **565** via second service provider **101-2**. Third party manager **500** may also make ISI **565** available to household **170** so that household **170** can access and/or modify ISI **565**. In this embodiment, third party manager **500** enables an integrated service identity despite the lack of a single provider of information exchange services.

To the maximum extent allowed by law, the scope of the present disclosure is to be determined by the broadest permissible interpretation of the following claims and their equivalents, and shall not be restricted or limited to the specific embodiments described in the foregoing detailed description.

What is claimed is:

1. A method of providing information services, the method comprising:

providing, by a service provider, a plurality of information services to a user, the plurality of information services including:

a first information service via a first access network; and

a second information service, which is different than the first information service and provided via a second access network, the second information service different than the first access network, wherein the first information service and the second information service are both selected from: a video content



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service, a digital voice service, an Internet access service, and a mobile phone service;  
 maintaining, by the service provider, an integrated identity for the user, the integrated identity encompassing the plurality of information services;  
 responsive to a first user input received by the service provider from the user via the first access network, recording integrated user settings in the integrated identity, wherein the integrated user settings are applicable to each of the plurality of information services; and  
 responsive to a second user input received by the service provider from the user via the second access network, recording differentiated user settings in the integrated identity, wherein the differentiated user settings are applicable to the first information service and inapplicable to the second information service;  
 providing a processor-executable integrated identity application to a support system resource of the service provider, wherein the integrated identity application, when executed, causes the support system resource to perform operations including:  
   accessing the integrated identity;  
   accounting for billable activity of the user for each of the plurality of information services in accordance with a particular integrated user setting; and  
   generating differentiated invoices in accordance with a particular differentiated user setting.

2. The method of claim 1, wherein the integrated identity is maintained, in an external database, by a third party manager via a virtual private network.

3. The method of claim 2, further comprising:  
   accessing an integrated customer service log in the integrated identity, wherein the integrated customer service log is indicative of customer service interactions with the service provider.

4. The method of claim 1, wherein the first access network comprises a co-axial cable access network.

5. The method of claim 1, wherein the plurality of information services includes the mobile phone service and wherein the mobile phone service includes a wireless data service.

6. The method of claim 1, wherein the plurality of information services includes the mobile phone service and wherein the mobile phone service excludes a wireless data service.

7. The method of claim 1, wherein the plurality of information services includes the video content service, the digital voice service, and the Internet access service, each received via the first access network.

8. The method of claim 1, wherein the plurality of information services includes the mobile phone service received, by the user, via the second access network and wherein the second access network supports code division, multiple access communication.

9. The method of claim 1, wherein the operations include: supporting a single logon for all user devices accessing any of the plurality of information services, wherein the user devices include a set top box, a voice over IP phone, and a computer.

10. A data processing system, comprising:  
   a processor;  
   computer readable storage including processor-executable integrated identity instructions received from a service provider providing a plurality of information services to a user, the plurality of information services including a first information service provided via a first

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access network and a second information service, which is different than the first information service and provided via a second access network, wherein the first information service and the second information service are both selected from: a video content service, a digital voice service, an Internet access service, and a mobile phone service, wherein the integrated identity instructions, when executed by the processor, cause the processor to perform operations comprising:  
   maintaining an integrated identity for the user, the integrated identity encompassing the plurality of information services;  
   responsive to a first user input received by the service provider from the user via the first access network, recording integrated user settings in the integrated identity, wherein the integrated user settings are applicable to each of the plurality of information services;  
   responsive to a second user input received by the service provider from the user via the second access network, recording differentiated user settings in the integrated identity, wherein the differentiated user settings are applicable to the first information service and inapplicable to the second information service; and  
   providing a processor-executable integrated identity application to a support system resource of the service provider, wherein the integrated identity application, when executed, causes the support system resource to perform operations including:  
     accessing the integrated identity;  
     accounting for billable activity of the user for each of the plurality of information services in accordance with a particular integrated user setting; and  
     generating differentiated invoices in accordance with a particular differentiated user setting.

11. The data processing system of claim 10, wherein the integrated identity is maintained, in an external database, by a third party manager via a virtual private network.

12. The data processing system of claim 11, further comprising:  
   accessing an integrated customer service log in the integrated identity, wherein the integrated customer service log is indicative of customer service interactions with the service provider.

13. The data processing system of claim 10, wherein the first access network comprises a co-axial cable access network.

14. The data processing system of claim 10, wherein the plurality of information services includes the mobile phone service and wherein the mobile phone service includes a wireless data service.

15. The data processing system of claim 10, wherein the plurality of information services includes the mobile phone service and wherein the mobile phone service excludes a wireless data service.

16. The data processing system of claim 10, wherein the plurality of information services includes the video content service, the digital voice service, and the Internet access service, each received via the first access network.

17. The data processing system of claim 10, wherein the plurality of information services includes the mobile phone service received, by the user, via the second access network and wherein the second access network supports code division, multiple access communication.

18. The data processing system of claim 10, wherein the operations include:

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supporting a single logon for all user devices accessing any of the plurality of information services, wherein the user devices include a set top box, a voice over IP phone, and a computer.

**19.** A non-transitory computer readable medium comprising: 5

processor executable instructions;

a processor;

computer readable storage including processor-executable integrated identity instructions received from a service provider providing a plurality of information services to a user, the plurality of information services including a first information service provided via a first access network and a second information service, which is different than the first information service and provided via a second access network, wherein the first information service and the second information service are both selected from: a video content service, a digital voice service, an Internet access service, and a mobile phone service, wherein the integrated identity instructions, when executed by the processor, cause the processor to perform operations comprising: 10

maintaining an integrated identity for the user, the integrated identity encompassing the plurality of information services; 15

responsive to a first user input received by the service provider from the user via the first access network, recording integrated user settings in the integrated identity, wherein the integrated user settings are applicable to each of the plurality of information services; 20

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responsive to a second user input received by the service provider from the user via the second access network, recording differentiated user settings in the integrated identity, wherein the differentiated user settings are applicable to the first information service and inapplicable to the second information service; and

providing a processor-executable integrated identity application to a support system resource of the service provider, wherein the integrated identity application, when executed, causes the support system resource to perform operations including: 25

accessing the integrated identity;

accounting for billable activity of the user for each of the plurality of information services in accordance with a particular integrated user setting; and

generating differentiated invoices in accordance with a particular differentiated user setting.

**20.** The non-transitory computer readable medium of claim **19**, wherein the integrated identity is maintained, in an external database, by a third party manager via a virtual private network.

**21.** The non-transitory computer readable medium of claim **20**, further comprising: 30

accessing an integrated customer service log in the integrated identity, wherein the integrated customer service log is indicative of customer service interactions with the service provider.

\* \* \* \* \*